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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,545	03/24/2004	Mitsuaki Osame	12732-223001 / US7068/714	3777
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EXAMINER BECK, ALEXANDER S				
ART UNIT		PAPER NUMBER		
2629				
NOTIFICATION DATE		DELIVERY MODE		
07/31/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary

Application No.

10/807,545

Applicant(s)

OSAME ET AL.

Examiner

ALEXANDER S. BECK

Art Unit

2629

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 1, 2, 4-14, 16, 18, 20-24, 26, 27, 29-31 and 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3, 15, 17, 19, 25, 28 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/19/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

CONTINUED EXAMINATION UNDER 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 19, 2009, has been entered.

ELECTION/RESTRICTIONS

2. Newly amended claims 1, 2, 4-14, 16, 18, 20-24, 26, 27, 29-31 and 33 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 1, 2, 4-14, 16, 18, 20-24, 26, 27, 29-31 and 33 are directed to a species (e.g., FIGS. 14-15) having characteristics mutually exclusive from the originally presented species (e.g., FIG. 12) recited in claims 3, 15, 17, 19, 25, 28 and 32.

For example, claims to the species in FIGS. 14-15 recite *"a first pixel...a second pixel...a third pixel...wherein electric potentials of each of the second power line, the fourth power line and the sixth power line are different from electric potentials of the other two,"* which is a feature exclusive to FIGS. 14-15 and not found in the species in FIG. 12. Conversely, the claims to the species in FIG. 12 recite *"wherein the signal line, the first power line, and the second power line are provided in parallel with each other, wherein the first power line is provided between the signal line and the second power line,"* which is a feature exclusive to FIG. 12 and not found in the species in FIGS. 14-15. In addition, these species are not obvious variants of each other based on the current record.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 1, 2, 4-14, 16, 18, 20-24, 26, 27, 29-31 and 33 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

INFORMATION DISCLOSURE STATEMENT

3. The information disclosure statement filed May 19, 2009, has been acknowledged and considered by the examiner. An initialed copy of the PTO-1449 is included in this correspondence.

CLAIM REJECTIONS - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3, 15, 19, 25, 28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Pub. No. 2001/0002703 by Koyama ("Koyama") in view of U.S. Patent No. 7,209,101 to Abe ("Abe").

As to claim 3, Koyama discloses a light emitting device comprising:
a pixel (Koyama, 104; FIG. 3) (Koyama, ¶ [0115]) comprising:
 a light-emitting element (Koyama, 111) (Koyama, ¶ [0116]),
 a first transistor (Koyama, 112) for determining a value of a current flowing to the light-emitting element (Koyama, ¶ [0117]),
 a second transistor (Koyama, 109) for determining a light emission or non light emission of the light-emitting element depending on a video signal input through a signal line (Koyama, 107) (Koyama, ¶ [0117]), and
 a third transistor (Koyama, 105) for controlling an input of the video signal (Koyama, ¶ [0116]),
wherein the light-emitting element, the first transistor, and the second transistor are connected in series between a first power line (Koyama, 110) and a counter electrode of the light-emitting element,
 wherein a gate electrode of the first transistor is connected to a second power line (Koyama, 113) (Koyama, Fig. 3),
 wherein the signal line, the first power line, and the second power line are provided in parallel with each other (Koyama, ¶ [0115]; see also Fig. 3).

Koyama does not disclose expressly (1) a fourth transistor for forcing the light-emitting element into a non-emission state irrelevant from the video signal, (2) wherein

the first power line is provided between the signal line and the second power line, and (3) wherein the second power line has an electric potential so that the first transistor operates in a saturation region when the second transistor is in an on-state, as claimed.

(1) a fourth transistor for forcing the light-emitting element into a non-emission state irrelevant from the video signal

Abe discloses a pixel (Abe, 2; FIGS. 8 and 33) for a light-emitting device, analogous in art with Koyama, comprising at least four switches, wherein a fourth switch (Abe, SW4) is provided for forcing a light-emitting element (Abe, LED) of the pixel into a non-emission state irrelevant from the video signal (Abe, col. 12, ll. 18-42; see also col. 21, l. 53 - col. 22, l. 4).

At the time the invention was made it would have been obvious to one having ordinary skill in the art to modify the light-emitting device of Koyama such that the pixel comprised a fourth switch for forcing the light-emitting element into a non-emission state irrelevant from the video signal, as taught by Abe.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to forcibly remove any charges stored in the light-emitting element, thereby stopping light emission by the light-emitting element simultaneously with stopping the supply of the current thereto, so that the light emission period of the light-emitting element can be controlled with higher precision (Abe, col. 12, ll. 29-35; see also col. 22, ll. 1-4).

Although Abe does not disclose expressly wherein the fourth switch is a transistor, as claimed, examiner takes Official Notice that the use of transistors as switching elements in display pixels is old and well-known in the art. Thus, at the time the invention was made it would have been obvious to one having ordinary

skill in the art to further modify the light-emitting device of Koyama and Abe such that the fourth switch is a transistor.

As one of ordinary skill in the art would appreciate, the suggestion/motivation for doing so would have been to facilitate a manufacturing process of the light-emitting device by using old, well-known and readily accessible devices as switches. Furthermore, because both teachings control transmission of a signal via a control signal, it would have been obvious to one having ordinary skill in the art to substitute one means for the other to achieve the predictable result of functioning as a switch.

(2) wherein the first power line is provided between the signal line and the second power line

As noted above, Koyama discloses wherein the signal line (Koyama, 107), the first power line (Koyama, 110), and the second power line (Koyama, 113) are provided in parallel with each other (Koyama, ¶ [0115]; see also Fig. 3).

Although Koyama does not disclose expressly the order of these three lines per pixel, there are three possibilities: 1) the first power line is provided between the signal line and the second power line; 2) the second power line is provided between the signal line and the first power line; and 3) the signal line is provided between the first power line and the second power line. Thus, Koyama does not disclose expressly wherein the first power line is provided between the signal line and the second power line, as claimed.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify Koyama such that the first power line is provided between the signal line and the second power

line because applicant has not disclosed that such a specific configuration provides an advantage, is used for a particular purpose, or solves a stated problem.

One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with having the signal line, first power line, and second power line in parallel with one another in a different order (e.g., any one of those suggested by Koyama) because both would perform equally well at providing the predictable result of driving the various transistors in a pixel of a display device.

(3) wherein the second power line has an electric potential so that the first transistor operates in a saturation region when the second transistor is in an on-state

Koyama discloses wherein the second power line (Koyama, 113) has an electric potential so that the first transistor (Koyama, 112) operates in an on-state when the second transistor (Koyama, 109) is in an on-state (Koyama, ¶¶ 132, 139).

However, as noted above, Koyama does not disclose expressly wherein the first transistor is in a saturation region when the second transistor is in an on-state, as claimed.

Examiner respectfully submits that it is old and well-known to operate thin film transistors in a saturation region when in an on-state, particularly in the application of a switching device. Thus, it would have been obvious to one having ordinary skill in the art to further modify the light-emitting device of Koyama such that the first transistor is in a saturation region when in an on-state. The suggestion/motivation for doing so would have been because, as one of ordinary skill in the art would appreciate, a thin film transistor acting as a switch and operating in a saturation region provides predictable and stable operation characteristics when using analog values as in the embodiment of Koyama.

As to claim 15, Koyama discloses wherein the first transistor and the second transistor are identical in conductivity (e.g., can be both p-channel or n-channel transistors) (Koyama, ¶¶ [0113-118, 148-152]).

As to claims 19 and 25, Koyama discloses the first transistor and second transistor having a channel length and a channel width (e.g., implicitly suggested in thin film transistors).

However, Koyama does not disclose expressly wherein the first transistor has a channel length longer than a channel width, and the second transistor has a channel length equal to or shorter than a channel width, wherein a ratio of the channel length to the channel width of the first transistor is 5 more, as claimed.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the teachings of Koyama such that the first transistor and second transistor had channel widths/lengths as claimed because applicant has not disclosed that such a specific transistor channel length/width provides an advantage, is used for a particular purpose, or solves a stated problem.

One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with any commercially available transistor channel width/length because both would perform equally well in functioning as switches in a pixel of a display device.

As to claim 28, Koyama discloses wherein the light-emitting device (or element substrate) is incorporated into at least one selected from the group consisting of a cellular phone, a mobile computer, a game machine, an electronic book, a video camera, a digital camera, a goggle display, a display device, and a navigation system (Koyama, ¶ [0002]).

As to claim 32, Koyama discloses wherein the electric potential of the second power line is fixed (Koyama, ¶ [0139]).

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama and Abe as applied to claims 3, 15, 19, 25, 28 and 32 above, and further in view of U.S. Patent No. 6,207,969 to Yamazaki (“Yamazaki”).

As to claim 17, Koyama does not disclose expressly wherein the first transistor is a depletion type transistor, as claimed.

Yamazaki discloses a light-emitting device comprising a depletion type transistor for driving a light-emitting element (Koyama, Figs. 1-2B, 14; see also col. 1, ll. 13-15 and 46-53).

At the time the invention was made, it would have been obvious to one having ordinary skill in the art to further modify the teachings of Koyama such that the first transistor is a depletion type transistor, as taught by Yamazaki.

The suggestion/motivation for doing so would have been so that the transistor could be formed on a single crystal silicon film by an intrinsic semiconductor in a silicon on insulator (Yamazaki, col. 1, ll. 45-53), as one of ordinary skill in the art would appreciate.

RESPONSE TO ARGUMENTS

8. Applicant's arguments with respect to claim 3 have been considered but are moot in view of the new ground of rejection.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER S. BECK whose telephone number is (571)272-7765. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dated: July 28, 2009

/Alexander S. Beck/
Examiner, Art Unit 2629